WHAT IS CLAIMED IS:

1. An exposure device comprising:

a light-emitting element array in which a plurality of element rows, each of which includes a plurality of light-emitting elements that are controlled in exposure gradation in m ($m \geq 3$) stages with substantially the same light-emitting spectrum in an independent manner respectively, and are aligned in a main scanning direction that intersects the sub-scanning direction, are aligned in the sub-scanning direction for aligning at least n ($n \geq 2$) number of light-emitting elements in the sub-scanning direction; and

a control device which assigns exposure gradations to each of the n number of light-emitting elements aligned in the sub-scanning direction according to the respective gradations obtained when a range from shadow to highlight is represented by $\{n \times (m - 1) + 1\}$ stages, and based upon the exposure gradations thus assigned, controls each of the n-number of light-emitting elements for exposing a single position of a photosensitive material n times at maximum.

2. An exposure device according to claim 1, wherein the light-emitting element is an organic EL element.

3. An exposure device according to claim 1, wherein the substrate on which the light-emitting array is formed is a TFT substrate.

4. An exposure device according to claim 1, wherein the photosensitive material is a silver halide photosensitive material.

5. An exposure device according to claim 4, wherein the light-emitting element controls exposure gradations by modulating at least either of a light-emitting intensity and exposing time.

6. An exposure device comprising:

a light-emitting element array having p ($p \geq 2$) kinds of light-emitting elements with different light-emission spectra, in which a plurality of element rows, each of which has a plurality of light-emitting elements that are controlled in the exposure gradation in m_i ($m_i \geq 3$, i is an integer of 1 to p) stages in an independent manner respectively for each of the kinds, and are aligned in the main scanning direction that intersects the sub-scanning direction, are aligned in the sub-scanning direction for aligning at least n_i (ni ≥ 2, i is an integer of 1 to p) number of light-emitting elements in the sub-scanning direction for each of the kinds; and

a control device which assigns exposure gradations to each of the ni number of light-emitting elements aligned in the sub-scanning direction according to the respective gradations obtained when a range from shadow to highlight is represented by $\{n_i \times (m_i - 1) + 1\}$ stages, and based upon the exposure gradations thus assigned, controls each of the ni-number of

light-emitting elements for exposing a single position of the photosensitive material n_i times at maximum.

7. An exposure device according to claim 6, wherein the number of light-emitting elements that emit light of the light-emitting spectrum having the lowest sensitivity to the photosensitive material in the p kinds of light-emitting elements that are aligned in the sub-scanning direction is made greater than the number of the light-emitting elements of the other kinds for each of the kinds.

8. An exposure device according to claim 6, wherein the light-emitting elements of p kinds are prepared as three kinds of light-emitting elements having light-emitting spectra that are capable of forming a full color image in association with photosensitive materials.

9. An exposure device according to claim 6, wherein the number of exposure gradations for each kind is arranged to satisfy the following equation:

$$\{n_1 \times (m_1 - 1) + 1\} = \{n_2 \times (m_2 - 1) + 1\}$$
$$= .. = \{n_p \times (m_p - 1) + 1\}$$

10. An exposure device according to claim 6, wherein the light-emitting element is an organic EL element.

11. An exposure device according to claim 6, wherein the photosensitive material is a silver halide photosensitive material.

12. An exposure device according to claim 8, wherein the

p kinds of light-emitting elements are formed as three kinds of red, green and blue light-emitting elements.

13. An exposure device according to claim 10, wherein the substrate on which the light-emitting array is formed is a TFT substrate.

14. An exposure device according to claim 11, wherein the light-emitting element controls exposure gradations by modulating at least either of a light-emitting intensity and exposing time.

15. An exposure device comprising:

a light-emitting element array which includes matrix electrodes that include a plurality of cathodes and a plurality of anodes arranged in a lattice shape, and are divided into a plurality of areas in the cathode aligning direction or the anode aligning direction and light-emitting elements that are provided at intersections of the matrix electrodes, the light-emitting element array being provided with p ($p \geq 2$) kinds of light-emitting elements with different light-emission spectra, in which a plurality of element rows, each of which has a plurality of light-emitting elements that are controlled in the exposure gradation in m_i ($m_i \geq 3$, i is an integer of 1 to p) stages in an independent manner respectively for each of the kinds, and are aligned in the main scanning direction that intersects the sub-scanning direction, are aligned in the sub-scanning direction for aligning at least n_i ($n_i \geq 2$, i is

an integer of 1 to p) number of light-emitting elements in the sub-scanning direction for each of the kinds;

a control device which assigns exposure gradations to each of the n number of light-emitting elements aligned in the sub-scanning direction according to the respective gradations obtained when a range from shadow to highlight is represented by $\{n \times (m - 1) + 1\}$ stages, and based upon the exposure gradations thus assigned, controls each of the n-number of light-emitting elements for exposing a single position of the photosensitive material n times at maximum; and

a driving device which, based upon a control signal from the control device, applies a voltage between the cathode and anode with respect to each of the divided areas, and independently drives the light-emitting elements that are provided at intersections of the matrix electrodes in the corresponding area for emitting light.

16. An exposure device according to claim 15, wherein the number of exposure gradations for each kind is arranged to satisfy the following equation:

$$\{n_1 \times (m_1 - 1) + 1\} = \{n_2 \times (m_2 - 1) + 1\}$$
$$= .. = \{n_p \times (m_p - 1) + 1\}$$

17. An exposure device according to claim 15, wherein the photosensitive material is a silver halide photosensitive material.

18. An exposure device according to claim 16, wherein the

substrate on which the light-emitting array is formed is a TFT substrate.

19. An exposure device according to claim 17, wherein the light-emitting element controls exposure gradations by modulating at least either of a light-emitting intensity and exposing time.

20. An exposure device comprising:

a plurality of kinds of light-emitting elements that have different light-emitting spectra, with at least one light-emitting element with respect to each of the kinds being aligned in the sub-scanning direction, and having a light-emitting element array in which the plurality of kinds of light-emitting elements are arranged for making the number of light-emitting elements which emit the light of the light-emitting spectrum having the lowest sensitivity with respect to the photosensitive material in the plurality of kinds of light-emitting elements greater than the number of elements for each kind of the light-emitting element of other kinds in the sub-scanning direction,

wherein by using the plurality of light-emitting elements arranged in the sub-scanning direction, a single position of the photosensitive material is exposed a plurality of times.

21. An exposure device according to claim 20, wherein the plurality of kinds of light-emitting elements are prepared as three kinds of red, green and blue light-emitting elements

having light-emitting spectra that are capable of forming a full color image in association with photosensitive materials.

22. An exposure device according to claim 20, wherein the light-emitting element is an organic EL element.

23. An exposure device according to claim 2, wherein, when a silver halide photosensitive material is used as the photosensitive material, the number of red light-emitting elements is made greater than each of the number of blue light-emitting elements and the number of green light-emitting elements.

24. An exposure device comprising:

three kinds of red, green and blue light-emitting elements, with at least one light-emitting element with respect to each of the kinds being aligned in the sub-scanning direction, and having a light-emitting element array in which the three kinds of light-emitting elements are arranged for making the number of red light-emitting elements being made greater than each of the number of the blue light-emitting elements and the number of the green light-emitting elements in the sub-scanning direction,

wherein by using the three kinds of red, green and blue light-emitting elements arranged in the sub-scanning direction, a single position of the photosensitive material is exposed a plurality of times.

25. An exposure device which exposes a photosensitive

material comprising:

a light-emitting element array which includes matrix electrodes which include a plurality of cathodes and a plurality of anodes arranged in a lattice shape and are divided into a plurality of areas in the cathode aligning direction or the anode aligning direction, and the light-emitting element array which includes light-emitting elements that are provided at intersections of the matrix electrodes; and

a driving device which applies a voltage between the cathode and anode with respect to each of the divided areas, and independently drives the light-emitting elements that are provided at intersections of the matrix electrodes in the corresponding area for emitting light.

26. An exposure device according to claim 25, wherein the light-emitting array comprises light-emitting elements of a plurality of kinds having respectively different light-emitting spectra.

27. An exposure device according to claim 25, wherein the light-emitting element is an organic EL element.

28. An exposure device according to claim 26, wherein the matrix electrodes are divided into an area in which light-emitting elements that emit light having light emission spectrum to which the photosensitive material has the lowest sensitivity are formed at the intersections among the plurality of kinds of light-emitting elements and areas other than the

area.

29. An exposure device according to claim 26, wherein the light-emitting elements of a plurality of kinds are prepared as three kinds of red, green and blue light-emitting elements having light-emitting spectra that are capable of forming a full color image in association with photosensitive materials.

30. An exposure device, which exposes a silver halide photosensitive material, comprising:

a light-emitting element array which has matrix electrodes that include a plurality of cathodes and a plurality of anodes arranged in a lattice shape, and are divided into a plurality of areas in the cathode aligning direction or the anode aligning direction and three kinds of red, green and blue light-emitting elements that are provided at intersections of the matrix electrodes, with the red light-emitting elements having the lowest sensitivity to the photosensitive material being placed on the intersections in a predetermined divided area as well as the green and blue light-emitting elements being placed on the intersections within other divided areas; and

a driving device which applies a voltage between the cathode and anode with respect to each of the divided areas, and independently drives the light-emitting elements that are provided at intersections of the matrix electrodes in the corresponding area for emitting light.

31. An exposure device according to claim 30, wherein the

light-emitting element is an organic EL element.